3. AFFECTED ENVIRONMENT

3.1. CULTURAL RESOURCES

3.1.1. History

As stated in the *NPS Cultural Resource Management Guideline* (NPS 1997a), cultural resources are "the material evidence of past human activities. Finite and nonrenewable, these tangible resources begin to deteriorate almost from the moment of their creation. Once gone, they cannot be recovered." Thus, it is imperative that "park management activities reflect awareness of the irreplaceable nature of these material resources". If these resources "are degraded or lost, so is the parks' reason for being". Cultural resources include archeological resources, structures, buildings, cultural landscapes, museum objects, and ethnographic resources. CVNP has focused its research and planning efforts on the stewardship of the first five types of cultural resources to date. In 2004, the regional office plans to begin the park's Ethnographic Study – Overview and Assessment.

Cultural resources at CVNP have been categorized into six primary cultural themes: prehistoric and indigenous cultures, agriculture, transportation, settlement, recreation, and industry (NPS 1987a). These cultural themes identify a resource by its primary historical significance. However, resources often exhibit overlapping cultural themes as their uses and associations have changed through time. Thus, the cultural resources of CVNP exhibit layers of cultural history that are interwoven.

In this draft EIS, the cultural resources likely to be impacted are those archeological resources, historic structures, and cultural landscapes primarily associated with the theme of agriculture. Impacts on museum objects will not be analyzed in this EIS as they do not fall within the scope of the proposed projects and no impacts are expected. Furthermore, impacts to ethnographic resources will not be analyzed, as these resources have not yet been studied to provide any baseline data about impacts.

As stated in the National Register Nomination for the Agricultural Properties Multiple Properties Document, the 19th century was regarded as the golden age of agriculture in the Cuyahoga Valley (NPS 1992a). The significant period for farming extends from 1797-1930. This time period is significant since it incorporates the beginnings of permanent agricultural settlements and the decline of agriculture due to the closing of the Ohio & Erie Canal.

Over time farming practices changed according to market forces, which were greatly influenced by technological developments, demographic changes, and transportation improvements. As dynamic, built environments, farms often responded by changing existing barns and outbuildings, by altering field sizes and arrangements, by adding new

structures, or by changing their production emphasis. Thus, the rural landscape continued to change and evolve through time and remaining farmsteads, structures, and fields typically represent more than one phase of agricultural development.

Appendix A lists the structural components of the contemporary rural landscape. The maps at the end of Chapter 2 highlight the locations of all pertinent properties. CVNP has hundreds of structures and buildings listed on the List of Classified Structures and 67 listings in the National Register of Historic Places. National Register listings include multiple property listings, historic districts, historic properties, historic structures, and archeological sites. CVNP has historic districts with farming significance as well as individual farm properties that are listed in the National Register of Historic Places. The most comprehensive criteria for nominating farm properties to the National Register exists in the *National Register Multiple Properties Document for the Agricultural Resources of the Cuyahoga Valley* (NPS 1992a).

One National Historic Landmark designation also exists in the park. It is the three mile stretch from Lock 37 to Lock 39 along the Ohio & Erie.

In addition, the park sits within the boundaries of the Ohio & Erie Canal National Heritage Corridor and the Canal Way Ohio National Scenic Byway runs through the park.

Cultural resource compliance for this project as required under Section 106 of the National Historic Preservation Act, as amended, has been initiated.

3.1.2. Archeology

Archeological resources are distributed throughout CVNP. More than half (51 percent) of the park has been archeologically surveyed. A total of 289 archeological sites have been recorded including prehistoric and historic sites. Five archeological sites are listed in the National Register of Historic Places. Several of the properties and lands associated with the rural landscape have been inventoried. Archeological surveys around farm structures have uncovered prehistoric and historic materials and features such as fire-cracked rock, debitage, diagnostic tools, ceramic sherds, pits, and foundations. Farm field survey work has revealed prehistoric materials and features such as stone debris and diagnostic tools. Temporal affiliations represented by these sites include Early, Middle, and Late Archaic, Late Woodland, and Late Prehistoric Traditions, as well as 19th and early 20th century historic time periods. In addition, prehistoric and historic deposits often overlap and may occur on the grounds of the same farmstead.

In general, most archeological survey work at CVNP occurs in conjunction with projects that require ground disturbance. The planning process in relation to these projects typically provides for archeological inventory work to be completed prior to the actual ground disturbing activity. This inventory work is the initial step taken to provide data about the location of resources and the level of significance. In turn, potential impacts on archeological resources are reduced through measures such as site avoidance, project

redesign, or other site protection measures. Currently, the only long-term archeological monitoring occurs in relation to actively cultivated farm fields where the fields are inventoried annually to compare and record findings over time.

3.1.3. Historic Structures

In the *NPS Cultural Resource Management Guidelines* (NPS 1997a), a historic structure is defined as "a constructed work…consciously created to serve some human activity". It also notes that "regardless of type, level of significance, or current function, every structure is to receive full consideration for its historical values whenever a decision is made that might affect its integrity. The preservation of historic structures involves two basic concerns: slowing the rate at which historic material is lost, and maintaining historic character." Buildings, monuments, dams, canals, bridges, roads, fences, mounds, structural ruins, and outdoor sculpture are all examples of historic structures.

In this draft EIS, the historic structures primarily impacted are buildings and outbuildings associated with the rural landscape of CVNP. There are few remaining fences; therefore, impacts on fence resources are expected to be negligible. New fencing is specifically discussed as part of the cultural landscape. Impacts on other structural resources in CVNP are expected to be negligible under this project scope and will not be analyzed.

In the park, dominant farmhouse types and styles are associated with specific periods of agricultural development that are generally representative of modest 19th and early 20th century Midwestern rural residential architecture. Styles include Greek Revival, Italianate, Queen Anne, Gothic Revival and Craftsman/Bungalow. These building types reflect the influence of the New England/New York area as well as vernacular architecture that is a reflection of the traditions of distinct cultural groups, available materials, and climate. Many houses actually represent a mix of architectural styles.

Barn types are a direct reflection of the agricultural practices that occurred in the Valley during specific periods. Three dominant barn types exist: the English 3-Bay Barn, the Raised Bank Barn, and to lesser extent, the Gambrel Roof Barn. Outbuildings such as sheds, privies, smokehouses, springhouses, carriage houses, horse barns, and summer kitchens are common to 19th century farmsteads and pertain more to the lifestyles of farmers and their families than to a particular phase of agricultural development. Other outbuildings including granaries, corn cribs, chicken coops, and bullpens have a more direct association with the rural practices. Greenhouses and fruit stands are outbuildings that are directly related to the economic diversification of farmers in the early 20th century when the decline in traditional agriculture began. In general, outbuilding construction methods and materials reflect their utilitarian purpose and the availability of inexpensive materials.

CVNP treats all structures as cultural resources and therefore universally applies National Register standards for historic preservation. The rural landscape includes 30 properties that are currently listed in the National Register of Historic Places, including 19 properties that are available for management (see Appendix A). Overall, the rural

landscape in CVNP includes 58 properties with 175 structures including historic structures listed in the National Register, potentially eligible historic structures, and non-historic structures. Listed and potentially eligible structures are managed under a stricter interpretation of the guidelines than other structures.

3.1.4. Cultural Landscapes

According to *NPS Management Policies* (NPS 2001e) and *Cultural Resource Management Guidelines* (NPS 1997a), all cultural landscapes are to be managed as cultural resources regardless of the type or level of significance. Management actions are to focus on preserving the physical attributes, biotic systems, and uses of a landscape as they contribute to historic significance. Landscapes differ from other cultural resources as changes from both natural processes and human activities are inherent. Because of this innate dynamic quality, preservation treatments seek to protect and preserve the historic character of a landscape over time through the continuity of distinctive characteristics. Thus, the emphasis is on maintaining the character and feeling rather than on preserving a specific appearance or time period.

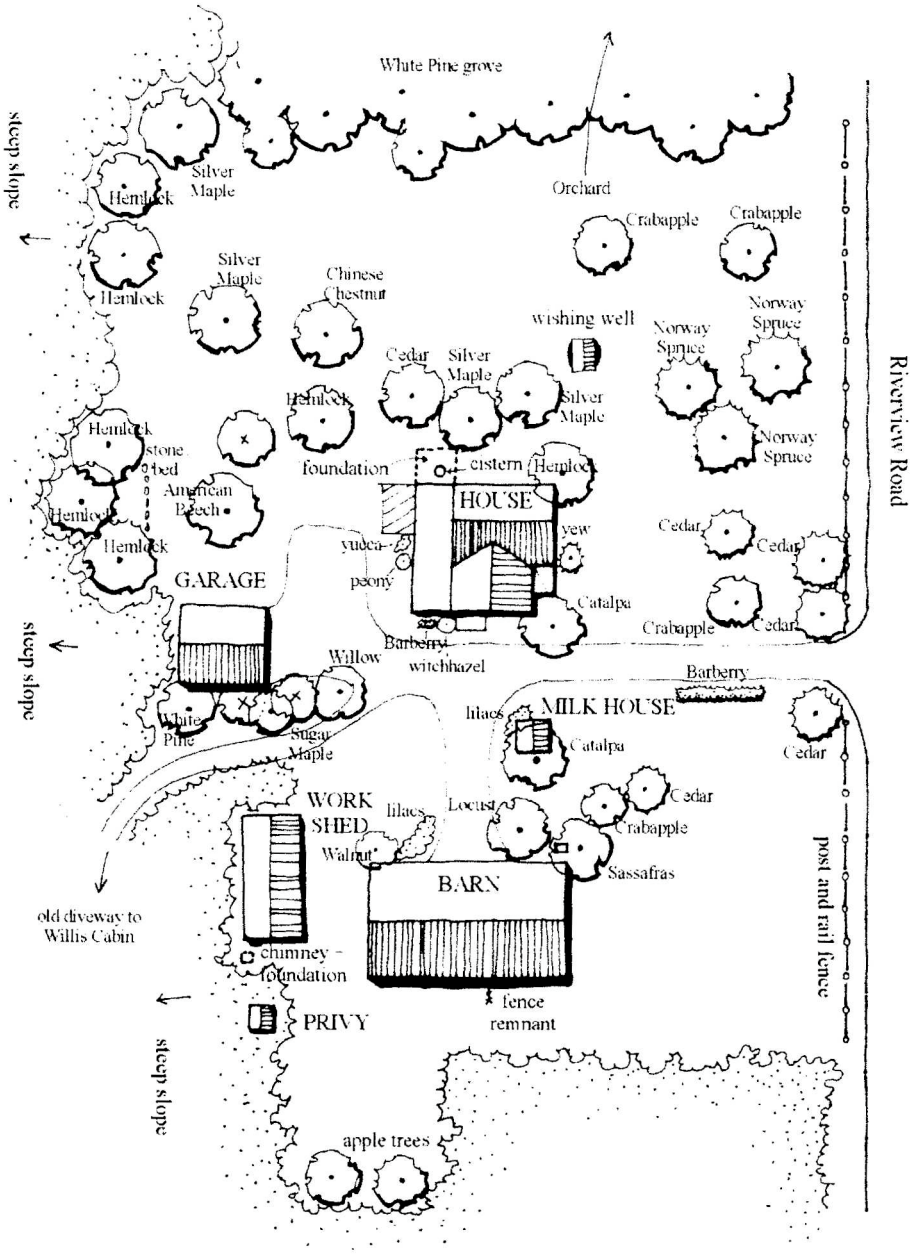
This view looking east towards the historic Point Farm includes the farmhouse and barn. This farmstead is available for use under the proposed action. Currently, the house is used by the park as offices and the barn is used by a local farmer under a short-term lease agreement.

At CVNP, the rural landscape is the primary cultural landscape that may be impacted by the alternatives proposed in this draft EIS. The rural landscape is generally classified as a vernacular landscape - a landscape that exhibits the historic activity as well as the cultural and aesthetic values associated with agriculture. At a park-wide scale, the rural landscape is physically characterized by the spatial organization and land use patterns created by contrasting patterns of farmsteads, hardwood forests, open meadows, row crops, and pastures. Remaining farmsteads, structures, and fields typically represent more than one phase of agricultural development, as farming was an evolutionary practice dependent on market forces.

At a smaller scale, farms are independent rural landscapes that also serve as component landscapes to the larger park-wide landscape. Farms are typically composed of the farmstead (house, barns, and outbuildings) and associated lands. Farmhouses are usually located closest to the road and their close proximity to farm outbuildings and fields represents an isolated or semi-isolated setting which is one of the most dominant characteristics of American farmsteads. Typical building types and styles are representative of the various farming eras and are described in the previous section.

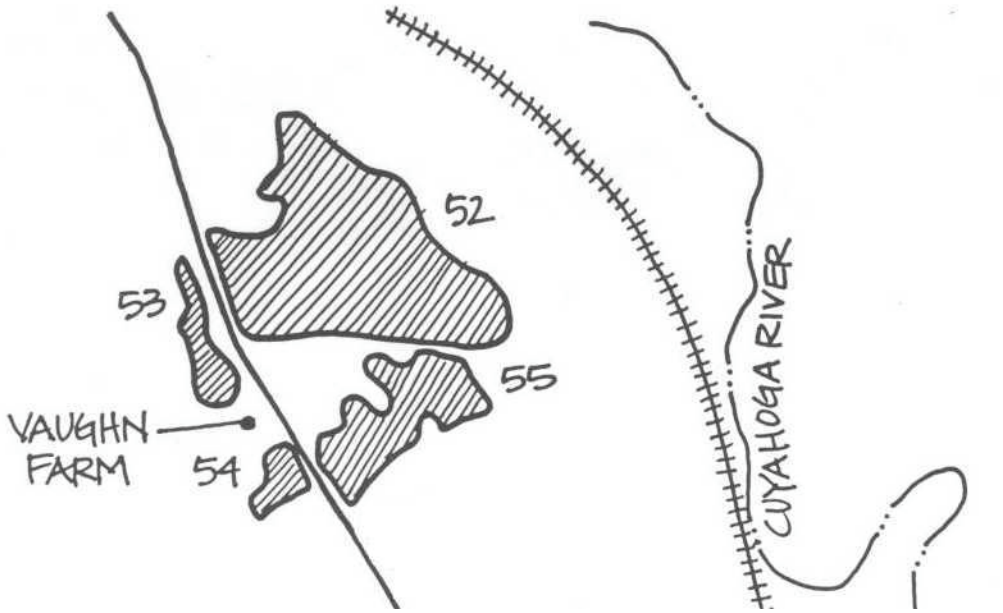
Associated lands consist of the farmstead curtilage and fields. The farmstead curtilage is generally defined to be the land immediately surrounding the farm structures. Its use is typically directly related to the use of the structures. In addition, distinctive circulation

A view looking northwest at the historic Vaughn Farmstead. This photo depicts a typical farm landscape comprised of a cluster of structures, circulation routes, fencing, vegetation, and open field.



A site plan for the Vaughn Farmstead showing the curtilage including structures, circulation patterns, small-scale features, and vegetation. Source: Richard Vaughn Farm Cultural Landscape Inventory, sketch by M. Weaver, 1999.

patterns, small-scale features such as wells or troughs, and planted vegetation, whether utilitarian or ornamental in nature, relate the land with a rural lifestyle. Fields are typically located adjacent to farmsteads and the farmstead curtilage. These fields have various shapes and sizes due to rugged terrain and irregular drainage, although they were originally delineated according to the grid system. Fields are located in well-drained uplands and in the rich soils of the floodplain. The wooded valley walls were also cleared and used as pasture and orchards. Depending on the era and the market forces, corn,



This drawing depicts the spatial relationship of associated fields to the Vaughn Farmstead.

wheat, swine, or dairy cattle may have dominated these agricultural lands among various other secondary crops and livestock types. Nonetheless, these lands served a rural productive purpose.

As described in detail in Appendix G, fences are traditional character-defining elements of the rural landscape. Fencing serves to organize and regulate the landscape from boundary and field delineations to farmyard spaces. Remnant fencing is typically repaired and preserved when possible and new fencing built to meet modern functional needs while being compatible to the historic setting. Historic fence types need not be replicated, as a false representation of historic landscape elements is undesirable. However, the reestablishment of fences and fence lines is valuable in portraying the character, look, and feel of the rural landscape.

Over time, CVNP has lost miscellaneous elements of farms. In particular, farm structures and fences have been lost to deterioration and removal and farm fields and land use patterns have been lost to natural succession. In some cases, even entire farmsteads have been lost. Despite this decline, a sufficient number of farmsteads, structures, and fields still remain in varied conditions throughout the park to convey a sense of its historic rural heritage. Efforts to improve the condition of remaining farmsteads, structures, and fields will improve the historic rural character of the landscape. CVNP typically conducts rehabilitation measures to improve cultural landscapes since this preservation treatment method acknowledges the need to alter or add to the landscape in order to meet new or continuing uses while retaining historic character. In the case of the rural landscape, compatible new uses are generally acceptable as a means of improving, protecting, and preserving the landscape's historic character. However, it is preferred that the agricultural

use be continued, even if physical change or the implementation of new farming technologies occurs, as it better maintains and portrays the historic pattern of use and, in turn, the rural character and feeling of the landscape. In essence, with continued agricultural use, the historic living and working rural landscape of CVNP is preserved and perpetuated functionally and aesthetically.

In addition, farmsteads and lands historically worked together as one functionally related unit for agricultural purposes. This holistic concept, in addition to the rural appearance and rural function of individual farm elements, is significant to the portrayal of the historic rural character. This applies first at the farm level but then at the park scale where it is assumed that the more farms that are holistically functioning for agricultural purposes, the better the overall portrayal of the overall historic rural character and thus, the larger rural landscape scene.

As described in Appendix D, 85 properties with 267 structures and about 1,345 acres of land currently contribute to the contemporary rural landscape. Only a portion of this landscape (58 properties) is available for management and therefore potentially affected by the proposed action.

In general, the 34 National Register properties in the park tend to focus on farm structures and often are not listed with all of the historically associated field acreage, although some may be represented. Eighteen of these properties are individually listed either on their own merit or under the *Agricultural Multiple Properties Document* (NPS 1992a). Twelve of these properties are listed as contributing to the Everett Historic District and four of these properties are listed as contributing to the Boston Mills Historic District.

The Everett Historic District was nominated to the National Register in 1994 for its significance as a crossroads community during the period 1830-1935. Historically, this district supported the surrounding agricultural community. Nine of the available National Register properties are located in the district. Thus, it is not solely composed of farmsteads but also consists of properties associated with the services that supported the agricultural community.

The Boston Mills Historic District was nominated to the National Register in 1992 for its association with the Canal Era and later company town period of the village's development (1827-1927). Although it was not nominated for its agricultural association, the district was also historically a small rural village. Four of the available National Register properties are located in this district.

For the purposes of this EIS, Everett and Boston properties are generally referred to as "farm" properties as they are rural in character. In turn, as the "farms" portray rural character, so does the district.

CVNP's National Historic Landmark, the three mile stretch from Lock 37 to Lock 39 along the Ohio & Erie Canal, was originally designated in 1966. Boundary increases occurred in 1975 and 1983. Although this Landmark is not directly related to agriculture

in CVNP it is located immediately adjacent to several farm fields and across the road from a farm property.

CVNP is also directly associated with the Ohio & Erie Canal National Heritage Corridor and the CanalWay Ohio Scenic Byway. Both follow along the Ohio & Erie Canal from Cleveland to Dover/New Philadelphia, Ohio. Rural scenes are common to both the corridor and the byway particularly in the southern portions where farming is still an active lifestyle.

3.2. VEGETATION

3.2.1. Overview

Cuyahoga Valley National Park encompasses a diverse mosaic of natural vegetation types interspersed among various human-developed land uses. Located in the glaciated Allegheny Plateau of northeastern Ohio, natural vegetation of the park currently is comprised of approximately 80 percent mixed-mesophytic forest (Braun 1961), predominantly of oak-hickory associations but also including maple-oak, oak-beech-maple, maple-sycamore, pine-spruce, and hemlock-beech associations. The long history of intensive land uses has left the park with forests possessing vast differences in community age and structure.

Interspersed among these forests are other natural habitats including older field habitats in various stages of succession (approximately 6 percent), wet meadows, and other wetland habitats (approximately 5 percent). Suburban lands comprise approximately 3 percent of the landscape, and include regularly mowed open areas such as lawns, golf courses, and cemeteries. Cultivated agricultural lands make up approximately 4 percent of the park.

Over 900 plant species occur in these various habitats. Nearly 20 percent of the species found in CVNP are exotic species not native to the area. The high number of exotics is probably due to the disturbance history of the park. While there are many exotic species, less than ten are considered invasive species. Invasive plants are those which invade a habitat, displacing native vegetation and often forming large monocultures with limited habitat value.

A typical bottomland forest community, including sycamore, American elm and cottonwood tree species.

3.2.2. Field Habitats

Only natural vegetation associated with field habitats is likely to be directly affected by the proposed action. The field habitats of CVNP are in various states of succession. Over the years, this patchwork of habitats developed as agricultural lands were abandoned and grew into forests. Fields that were abandoned recently are in earlier stages of succession. Other fields have been managed through periodic mowing, which has kept them in an earlier stage of succession.

Open fields are dominated by grasses (e.g., *Poa trivialis*, *Poa sylvestris*, *Panicum virgatum* and *Danthonia spicata*) with many forbs (e.g., *Solidago canadensis*, *Solidago graminifolia*, *Aster nova-borensis* and *Apocynum cannibinum*) present as well. In these fields, there is little woody growth as many undergo regular mowing (golf courses are not considered open fields). Regularly mowed fields comprise about 600 acres of the park boundary.

Other fields are further along in succession. The ground is covered mostly by grasses and forbs, but also includes brambles (*Rubus* spp.) and a limited amount of shrubby species (e.g., gray dogwood (*Cornus racemosa*), smooth arrow-wood (*Viburnum recognitum*), common privet (*Ligustrum vulgare*), oleaster (*Elaeagnus multiflora*), and autumn olive (*Elaeagnus umbellata*)). Shrubs do not dominate large areas. Seedlings and saplings of fast-growing trees such as poplars (*Populus* spp.) may be present. About 835 acres of this habitat exists in the park boundary.

Some areas possess significant shrub/sapling growth but are not considered forest, as they do not possess a closed canopy. These are areas in which the majority of the ground is covered with woody growth greater than six feet in height, with a few emergent trees of six to 20 feet in height developing above the shrub layer. These fields are typically vegetated with shrubs and young trees of up to six inches in diameter at breast height - (e.g., hawthorn (*Crateagus* spp.), red maple (*Acer rubrum),* wild cherry *(Prunus serotina),* oaks *(Quercus* spp.), bigtooth aspen (*Populus grandidentata)* and white ash (*Fraxinus americana*)). Approximately 640 acres of this habitat exist in the park boundary.

Only vegetation within and directly adjacent to the proposed agricultural lands (i.e., 1,345 acres of field habitats and current agricultural lands) is likely to be directly affected by the proposed action. For the purposes of analyzing impacts on vegetation, proposed agricultural lands are best categorized as either "open fields" or "older fields." “Open fields” include currently or recently managed fields (i.e., agriculture or mowed areas) and grassy meadows (e.g., recently disturbed sites) that are early in succession but do not possess significant shrub/sapling growth. There are 171 “open fields” encompassing approximately 1,083 acres. “Older fields” are those areas that have significant shrub/sapling growth to heights sometimes greater than six feet. Seventy “older fields”, ranging in area from 0.1 acre to 65 acres, cover approximately 262 acres of park land.

3.2.3. Forests

It is expected that while forest habitats are not directly affected by the proposed action, forest vegetation in the park may be indirectly affected by some alternatives. The forests of CVNP can be broadly categorized as upland or bottomland forests, based on landscape position. In the upland forests, the dominant vegetation is a mix of hardwood trees, mainly oaks, maples and beech. The groundcover in the upland forests tends to be sparse. In bottomland forests, the predominant vegetation is mainly deciduous hardwood trees, mainly ash, cottonwood (*Populus deltoides*), sycamore (*Platanus occidentalis*) and red maple. The groundcover in these forests tends to be thicker than in the uplands. A recent study has suggested that the ability of bottomland forests to regenerate over time is being severely impacted by continued high deer densities, while in upland forests, species diversity seems to decrease when exposed to deer browsing under current conditions at CVNP (NPS 2001c).

3.2.4. Rare, Threatened, and Endangered Plant Species

No federally-listed plant species are known to occur in the park (U. S. Fish and Wildlife Service 2001). However, the U. S. Fish and Wildlife Service indicates that the park is within the range of the federally-threatened northern monkshood (*Aconitum noveboracense*). This plant is found on cool, moist talus slopes or shaded cliff faces in wooded ravines.

Twenty-one state-listed rare plant species are known to occur in CVNP (Table 3.1). These plants occur in various habitats in CVNP. Several of the species occur only in forests, while others are adapted to field habitats. With the exception of butternut (*Juglans cinerea),* there are no recorded occurrences of these state-listed plants within or near proposed agricultural lands. A small population of butternut trees is growing directly adjacent to a proposed field edge.

The fringed gentian, a state-listed potentially threatened species, is found in the park.

Table 3.1. State-listed Rare Plants Occurring in Cuyahoga Valley National Park

Common Name (*Scientific Name*)	**Status**	**Habitat**
Drooping wood sedge (*Carex arctata*)	E	Forest
Silvery sedge (*Carex argyrantha*)	P	Forest/Edges
Golden-fruited sedge (*Carex aurea*)	P	Clearings/open forests
Crawe's sedge (*Carex crawei*)	P	Wet Meadows/Seeps
Spotted coral-root (*Corallorrhiza maculata*)	P	Rich open forests
Rock-harlequin (*Corydalis sempervirens*)	P	Openings/sandstone outcrops
Yellow lady slipper (*Cypripedium calceolus* var. *pubescens*)	P	Steep forested ravines/slumps
Variegated horsetail (*Equisetum variegatum*)	T	Wetlands/calcareous seeps
Closed gentian (*Gentiana clausa*)	P	Pond margins/wetlands/ditches
Fringed gentian (*Gentianopsis crinita*)	P	Fields/calcareous seeps/road cuts
Butternut (*Juglans cinerea*)	P	Open or forested floodplains/edges
Ground juniper *(Juniperus communis*)	E	Open fields/pastures/open forests
Round-fruited pinweed (*Lechea intermedia*)	T	Dry eroding slopes/forests
Weak spear grass (*Poa languida*)	P	Dry Oak forests
Sessile-fruited arrowhead *(Sagittaria rigida*)	T	Brackish water/muddy banks
Canadian buffalo berry (*Shepherdia canadensis*)	P	Full sun/fields/open forests
Leafy goldenrod (*Solidago squarrosa*)	T	Fields/open areas
Swamp oats (*Sphenopholis pensylvanica*)	P	Wet areas in full sun
Shining ladies' tresses (*Spiranthes lucida*)	P	Wet meadows/lake shores/damp forests/pastures
Great Plains ladies' tresses (*Spiranthes magnicamporum*)	P	Dry, grassy fields
Lesser ladies' tresses (*Spiranthes ovalis*)	P	Moist forests/forested pastures/moist fields

State status: E = state endangered, T = state threatened, P = state potentially threatened.
Sources: status - ODNR 2000; habitats - Andreas 1986, McCance et al. 1984.

3.3. WILDLIFE

This section describes the wildlife and wildlife habitat resources in the park that may be affected by the proposed action.

3.3.1. Wildlife Habitat Types and Landscape Characteristics

The CVNP forests described in Section 3.2 are heavily fragmented by roads, suburban development, recreational areas (ski areas, sledding hills, picnic areas, golf courses, events sites), a railroad, utility corridors, and agricultural lands throughout the park. The largest and oldest semi-contiguous tracts of mature forest are between approximately 750 and 1,800 acres in size. These are located in Brecksville and Bedford reservations managed by Cleveland Metroparks in the northern half of CVNP and in the Virginia Kendall, Blossom Music Center, and Oak Hill areas in the southern half of the park. Even these tracts, however, are internally fragmented and dissected, with correspondingly large amounts of habitat edge, which reduces their habitat value for forest interior species.

Currently there are approximately 4,100 acres of "open" habitat areas of varying quality (including agricultural, old-field, grassy areas, wet meadows/marshes, campgrounds, golf courses, etc.) within the CVNP boundary (Appendix D). More than half of these areas are known or believed to be actively managed by the NPS or other public and private landowners through mowing or agriculture.

Fields planted at some time in hay (including alfalfa rotated with clover) or oats, potentially present the highest quality habitat for grassland birds and butterflies when compared to most other agricultural land uses. Small mammals such as meadow voles (*Microtus pennsylvanicus*) and other microtine rodents that are important food sources for raptors and coyotes also rely on this habitat. On federal land, these fields (averaging 14 acres in size) comprise 231 acres, or nearly half of the 475 acres currently cultivated by SUP holders.

Of the existing unmanaged open space in the park, approximately 642 acres are currently in later successional stages consisting of a well-developed shrub/sapling layer greater than six feet tall, with some emergent trees. Approximately 41 percent of this taller "older field" habitat (262 acres) will be directly affected by the proposed action. These "older fields" provide habitat for species associated with early successional (young) forests.

The amount of total habitat in the park as a proportion of the regional landscape is unknown. However, one study of land use changes in Ohio (Kaplan et al. 2001) indicates that the region around and including Cuyahoga and Summit counties has undergone substantial changes between 1974 and 1992. Specifically, urbanization has increased by 5-25 percent and the amount of farmland has decreased by more than 20-30 percent. Additionally, these counties have a high proportion of land in protected status (>13

percent of total acreage). This suggests that over time, as habitats are lost outside of protected areas, actions that influence extent of habitats inside parks such as CVNP will have increasing regional significance.

3.3.2. Animal Populations

Faunal species detected in the park include 194 species of birds, 91 aquatic macroinvertebrates, 43 fish, 32 mammals, 22 amphibians, and 20 species of reptiles. In addition, 56 butterfly species have been documented in the park.

Populations of a number of wildlife species have increased substantially in the last decade both locally and regionally, to the extent that these species have recently reached nuisance levels within the park. Most notably, raccoons (*Procyon lotor*), woodchucks (*Marmota monax*), Canada geese (*Branta canadensis*), and white-tailed deer are ubiquitous throughout the park, and consistently generate the greatest number of conflicts with humans. Additionally, beaver and coyotes (*Canis latrans*) have increased in numbers over the last decade and the incidence of human conflict with these species has also become more frequent.

Wildlife most likely to be affected by the proposed action in this draft EIS are white-tailed deer, terrestrial birds, coyotes, beaver, potential "nuisance species" such as raccoons, woodchucks, and Canada geese, and butterflies. The status of each of these species or groups is addressed in more detail below.

Because the Cuyahoga River, wetlands, and watercourses will have protective buffers (NPS 2002a, b), impacts of the proposed action to aquatic and wetland-associated species such as fish, macroinvertebrates, and amphibians are generally not expected and therefore will not be discussed further in this section. Instead, any possible impacts on wildlife associated with wetlands and farm ponds are discussed in Section 4.4 - Impacts on Water Resources.

3.3.3. Threatened and Endangered Animal Species

Detections of the federally-threatened bald eagle (*Heliaeetus leucocephalus*) have been limited to 1-2 non-breeding individuals seen perched near the Cuyahoga River during winter months. No nests have been found within the park, though nests have been found in neighboring counties.

The federally-endangered Indiana bat (*Myotis sodalis*) was recently found in the park. The park contains an abundance of apparently suitable habitat. Suitable breeding and roosting habitat for Indiana bats can vary widely, but typically consists of large (>10" diameter) trees with peeling bark located near a permanent water source and good foraging areas. Foraging habitat is typically in floodplain forests and riparian areas. An

inventory is being conducted during the summers of 2002-2003 to locate additional occurrences of Indiana bats in the park.
The park is also within the range of the eastern massasauga (*Sistrurus catenatus catenatus*), a candidate species for listing under the Endangered Species Act (ESA) and listed as endangered by the State of Ohio. While the type of wet habitats this snake prefers is found in CVNP, there is no record of this species ever occurring within the park.

There are no designated Critical Habitats or wilderness areas within the vicinity of the park.

Fifteen bird species detected in the park are Threatened or Endangered in the State of Ohio (ODNR 2002). Many of these species are transients that do not breed in the park. Some breeding species utilize primarily wetland habitats. Only those that are known to breed in the park in terrestrial habitats may be potentially affected by the proposed action. These species are discussed as a group together with other birds of conservation concern in Section 3.3.5.

Consultation with the U.S. Fish and Wildlife Service has been initiated in accordance with the ESA.

3.3.4. White-tailed Deer

Deer populations have been monitored in CVNP since 1990 using roadside spotlight surveys (NPS 1987b). Results of those surveys have demonstrated a population increase of approximately 9 percent annually over the past 12 years, with the population doubling in that period of time. Current estimates of deer densities within CVNP range between 47-89 deer per square mile at various locations across the park, approximately 2-4 times higher than densities shown elsewhere to be associated with significant adverse impacts on forest ecosystems (Alverson et al. 1988; Tilghman 1989).

White-tailed deer are quite abundant in the park.

Since 1996, winter deer distribution across the park has been examined using transect surveys of fecal pellet groups at up to 200 survey locations established in a systematic grid spanning the entire park (NPS 1997d). Results of those surveys have indicated that deer are distributed patchily across CVNP, with a few areas of very high relative abundance, surrounded by areas of relatively uniform, moderate abundance.

White-tailed deer are generalist herbivores that forage on a wide variety of plants across most natural habitats. Highest quality deer habitat typically includes clearings located

near forested areas (Halls 1984). Deer in CVNP have an abundance of agricultural, mowed, suburban, and early-successional forest clearings interspersed within a forested landscape, which presumably contributes to the high deer densities observed within the park. Deer occupy all habitats within the park, but tend to forage primarily in and around these clearings and open lands, as evidenced by spotlight surveys, fecal pellet surveys, and an assessment of wildlife damage in agricultural areas of the park (Labovitz 1994).

Fecal pellet surveys (NPS 1997d) also suggest that winter deer aggregations occur in areas that provide good shelter from inclement weather (e.g., conifer stands) near good foraging areas (old fields, agriculture, suburban areas where supplemental feeding occurs). Pellet surveys in summer 1997 indicated a shift in deer distribution, with smaller aggregations occurring in different areas than during winter, and a more even distribution overall. This shift probably is related to seasonal changes in food availability from woody browse to herbaceous growth and foliage of woody plants, as well as behavioral changes as does become more solitary (NPS 1997d) and shelter from harsh weather is not as critical. However, the densest aggregations still were centered in areas of open lands bordered by forests.

Heavy deer browsing has been documented to have serious deleterious effects in forests, old fields, and agricultural lands of CVNP (Labovitz 1994; NPS 2001c; NPS 2001g). Data from an experimental study, using 10m x 10m deer exclosures begun in 1999, indicate that deer browsing in fields and forests appears to be suppressing seedling growth and forest succession/regeneration (NPS 2001c). At current levels of deer browse, less than 2 percent of large-flowered trillium (*Trillium grandiflorum*) plants (a forest wildflower) produce flowers, compared with 23 percent of plants excluded from deer browsing (NPS 2001g). High levels of deer browse also have an adverse impact on species richness and abundance of forest understory birds (Petit 1998). A survey of wildlife damage in agricultural lands of the park (Labovitz 1994) determined that deer were one of the primary causes of agricultural losses, particularly for sweet and field corn, orchards, and pumpkins. Deer were also observed consistently in hay, oats, clover, and wheat fields, though damage to those crops appeared to be minimal. One farmer, who currently grows corn, employs auditory devices (e.g. corn cannons, barking dog tapes) to deter deer and other wildlife on private land. Several farmers kill deer each year on private land in the park under nuisance wildlife permits from the state of Ohio.

Rapid increase (15 percent annual) of deer populations between 1990-1996, along with a concurrent rise in deer-vehicle collisions and apparent impacts on vegetation led to preparation of an EA and Deer Management Plan (NPS 1997b) that recommended reduction of the deer population through culling. However, the final EA and accompanying Finding of No Significant Impact (NPS 1997c) were ultimately withdrawn due to a lawsuit, and no deer management has been implemented. Since that time, the rate of population increase has slowed and numbers detected during spotlight surveys appear to be fairly stable. Yet, impacts on forest habitats over this stable period have been substantial (NPS 2001c, 2001g). The park has initiated early planning steps for a full Environmental Impact Statement analysis under NEPA to assess possible management alternatives for reducing these impacts.

Table 3.2. Terrestrial Bird Species Known to Breed in CVNP and of Conservation Concern in Ohio

Common Name (Scientific Name)	Status*	Habitat
Acadian flycatcher (*Empidonax virescens*)	PIF	Forest
American woodcock (*Scolopax minor*)	PIF	Early succession
Canada warbler (*Wilsonia canadensis*)	SI, PIF	Forest
Cerulean warbler (*Dendroica cerulea*)	SI, PIF	Forest
Dark-eyed junco (*Junco hyemalis*)	ST	Forest
Field sparrow (*Spizella pussila*)	PIF	Early succession
Golden-winged warbler (*Vermivora chrysoptera*)	SE, PIF	Early succession
Henslow's sparrow (*Ammodramus henslowii*)	SI, PIF	Grassland
Hermit thrush (*Catharus guttatus*)	ST	Forest
Kentucky warbler (*Oporornis formosus*)	PIF	Forest
Louisiana waterthrush (*Seiurus motacilla*)	PIF	Forest
Red-shouldered hawk (*Buteo lineatus*)	SI	Forest
Winter wren (*Troglodytes troglodytes*)	SI	Forest
Wood thrush (*Hylocichla mustelina*)	PIF	Forest

* SE = Endangered in Ohio, ST = Threatened in Ohio, SI = Special Interest in Ohio (ODNR 2002); PIF = Partners in Flight bird of conservation concern (Hunter et al. 1993 - current Ohio Hills and Allegheny Plateau lists)

3.3.5. Terrestrial Birds

Natural habitats within CVNP provide breeding habitat for a minimum of 105 terrestrial bird species. A total of 15 breeding species are "of concern" for conservation (Table 3.2).

One of these species is endangered, two are threatened, and five are of special interest at the state level (ODNR 2002). At least 10 species are of conservation concern nationally or regionally and are priority species as determined by the international conservation consortium, *Partners in Flight* (Hunter et al. 1993; Partners in Flight 2002). Most of these species of concern have exhibited steep population declines throughout their range or regionally due to habitat loss and degradation. In CVNP, 10 of these species of concern are associated with mature forests, three are dependent on early successional forests ("older fields"), and one is specific to grasslands (Table 3.2). Nearly all of these species require relatively large, unbroken tracts of habitat for breeding. Species inhabiting old fields and grasslands usually require very specific vegetative features and successional stages for suitable breeding and foraging habitats.

Other species that are rare in CVNP, such as ovenbird (*Seiurus motacilla*) are not officially of concern in the region, but are known to be sensitive to forest tract size, and their rarity is probably related to existing fragmentation in the park. A study of nesting success of understory forest birds within CVNP (Petit 1998) indicated that even the most common species have success rates too low to sustain their populations. An assessment of relative abundance of forest birds and their specific habitat requirements within the park is currently underway.

3.3.6. Coyote

Coyote populations have been monitored in CVNP since 1993 using auditory (vocal response to taped howls) counts. An index of abundance generated from these counts suggests an annual population increase of 14 percent, with the population doubling in the nine-year period (NPS 1993a).

An analysis of coyote diet in the park (Cepek 2000) indicated that meadow voles (*Microtus pennsylvanicus*) were the primary prey (18 percent of the diet), followed by eastern cottontail rabbits (*Sylvilagus floridanus*; 13 percent), white-tailed deer (13 percent), and raccoons (12 percent). Although Cepek (2000) had evidence of at least one fawn killed by coyotes, he concluded that the deer component of the diet came primarily from carrion. Similarly, the author speculated that raccoon also was consumed primarily as carrion. Coyotes in CVNP were characteristically opportunistic, with 9 percent of the diet comprised of plant material and seeds. At least some observations of coyotes feeding on crabapples were recorded, though the methodology of scat collection was biased against detecting fruits and vegetable matter in the diet.

Habitat preferences of coyotes in CVNP are not currently known although research on this issue is planned for 2002. Other studies indicate that coyotes are habitat generalists with preferences for open habitats and forest edges as hunting areas (Theberge and Wedeles 1989, Crawford 1992). The high prevalence of voles and rabbits in diets of coyotes in CVNP (Cepek 2000) may suggest these same habitat preferences in the park.

Coyote sightings are becoming more common in the Valley.

Direct interactions between the public and coyotes remain relatively rare, though the frequency of complaints is increasing. Public awareness of the presence of coyotes in the park and concern about potential injury to themselves or pets has increased in the last two years.

Coyotes are considered a major threat to livestock, particularly sheep, and poultry throughout their range. However, only a few complaints about coyote predation in agricultural or residential areas within CVNP have been documented. These were unsubstantiated reports of predation on poultry and pet cats. Lack of complaints documented thus far probably reflects a current lack of susceptible livestock within the park, as well as the fact that the few farmers with livestock employ tactics (e.g., penning animals at night) to minimize risk of coyote (and raccoon) predation.

3.3.7. Beaver

Beaver populations reappeared in Ohio in 1936 after being extirpated in the state by over-trapping. Beaver now occupy two-thirds of the state and, in 2000, the population was estimated at nearly 30,000 animals statewide (ODNR 2001a). The most dramatic increase in the state beaver population occurred during the 1990s, when the population more than doubled. Beaver are believed to have moved into CVNP in the 1980s, and have been responsible for increasing the number of wetlands and the abundance of wetland animal species, especially great blue herons, in the park (NPS 1992b). Beaver have been surveyed in CVNP since 1991 to determine colony locations and extent of activities (NPS 1992b). Over the decade in which surveys were conducted, the beaver population in the park appears to have remained relatively stable, with few new colonies arising.

Nevertheless, within established locations, beaver activity can increase and expand, causing problems for park structures and lands, roads and railroads, and for adjacent landowners, causing them to often be considered a nuisance. Responses to these problems have included installation of water level control devices in beaver ponds, destruction of beaver dams, physical protection of trees, and a few attempts at live-trapping and relocation of animals (the relocations were unsuccessful). Although lethal control is an option specified as a management tool (NPS 1992b), resource management personnel have never had to employ lethal control to date. However, residents in retention properties in the park have occasionally contracted nuisance trappers for lethal control for beaver problems.

3.3.8. Other Nuisance Wildlife

With an increase in habitat fragmentation, the sprawl of suburbia with its abundant supply of easy food resources, and the lowering of consumer demand for pelts, raccoon populations in Ohio and most of the eastern U.S. have increased dramatically. In Ohio, the raccoon population apparently has almost quadrupled in size since 1987 (ODNR 20001a). Such rapid population growth has made the raccoon one of the most common nuisance animals in urban areas of the state. This, along with fear of the spread of raccoon-strain rabies into the state from the east, has led the state to institute a regulation that all captured raccoons be released on-site or euthanized, rather than relocating them elsewhere.

Woodchuck populations are not specifically monitored by the state or in CVNP, but are widespread and abundant throughout the park. It probably also is safe to assume that with the protection and abundant food and shelter resources afforded them in suburban areas, woodchucks have increased along with other urban wildlife species.

Canada geese also have adapted well to the suburban and park landscapes with an abundant supply of human-made ponds surrounded by mowed lawns, usually protected from predation. The year-round supply of high quality food resources in these areas have caused some populations of a normally migratory species to drop their migration habit,

creating new "resident" populations in urban areas over the last 20 years. Under these ideal habitat conditions, resident urban goose populations continue to increase. In response to this population growth, the Ohio Department of Wildlife extended hunting seasons to target the resident versus migratory geese. This hunting pressure, however, would not greatly affect resident geese within CVNP.

Raccoon, woodchuck, and Canada goose populations have not been monitored directly in CVNP, and no systematic effort has been made to track the frequency of nuisance reports within the park. However, it is safe to assume that populations of these species in the park have followed the same or more dramatic population trends seen elsewhere in the state. Additionally, these species are certainly the most frequent nuisances for landowners within and adjacent to the park.

All three species were found to be causes of agricultural damage in CVNP (Labovitz 1994) though damage by Canada geese in that study was relatively minor. Raccoon and goose damage was greatest in sweet corn, woodchucks damaged sweet corn and pumpkins, and geese grazed on young oats and clover plants (though this did not have significant impact on the yield). Only one farm in that study (Crooked River Herb Farm) was cultivated with garden vegetables and herbs. Because of the high likelihood of complete loss due to wildlife damage, intensive prevention measures were employed, including the presence of guardian dogs. No wildlife damage was incurred on that land during the one-year study.

3.3.9. Butterflies

Since 1996, butterflies have been surveyed at one old field site (Terra Vista) in CVNP. This site is one of 30 sites monitored statewide, as part of a program initiated by the Cleveland Museum of Natural History. None of the species detected in this CVNP survey are threatened or endangered. In general, butterfly species are most diverse and abundant in old field habitats. Of the 91 species known to occur in Summit and Cuyahoga counties, nearly half (47 percent) require open fields or grassland habitats, 19 percent depend upon wetland or riparian areas, and 5 percent inhabit forest/field edges. Moreover, alfalfa, clover, and milkweed are critical adult plant foods for 64 percent of all butterflies in these counties. This same distribution of habitat requirements was evident for butterfly species found within CVNP.

3.4. WATER RESOURCES

This section describes the water resources in the park, including rivers, streams, wetlands, and ponds, that may be affected by the proposed action.

3.4.1. Rivers and Streams

More than 22 miles of the Cuyahoga River pass through CVNP. One 8-mile segment of this part of the river (between Rt. 82 and Peninsula) has been listed on the Nationwide Rivers Inventory (NRI). The NRI is a register of river segments that potentially qualify as national wild, scenic or recreational river areas under the National Wild and Scenic Rivers Act. The river has been designated as an American Heritage river. The Cuyahoga River drains more than 800 square miles of Northeastern Ohio; only 6.5 percent of this drainage area is within CVNP. Valley walls and tributary ravines characterize the watershed with steep forested slopes rising 100 to 600 feet above the floodplain.

According to topographical maps published by the U. S. Geological Survey, more than 20 perennial streams totaling over 200 miles in length exist within the park boundary. Some of the larger tributaries (e.g., Tinkers Creek and Furnace Run) drain areas larger than 50 square miles while most others range between 2-20 square miles. Additional unmapped ephemeral streams and headwaters also exist.

Approximately 22 miles of the Cuyahoga River meander through the park.

Water quality in the Cuyahoga River has been historically poor with ongoing major concerns relating to Akron's Waste Water Treatment Plant discharges, combined sewer overflows, faulty septic systems, increased urbanization and erosion (Ohio EPA 1999). Similar impacts affect water quality in park streams. Water quality, habitat quality, and macroinvertebrate communities vary across park streams from good to poor (Stewart et al. 1998). However, in general, most park streams meet the warm water habitat standards set by the State of Ohio (Ohio EPA 1999). The park annually monitors 19 streams for physical and chemical water quality characteristics.

Only watercourses near proposed agricultural areas are likely to be affected by the proposed action, with the potential for impact significantly decreasing after distances of 100-200 feet (Wegner 1999). Watercourses near areas assigned to grassland habitat

management would not likely be affected. Watercourses most likely to be affected by the proposed action are summarized in Table 3.3. Thirty-two proposed agricultural fields are within approximately 200 feet of the Cuyahoga River with most existing within the floodplain. One of those fields and two additional fields are within 200 feet of one of the largest tributaries (Tinkers Creek). Among the smaller tributaries, Stanford Run has six potential farm fields within approximately 100 feet. Twelve other smaller tributaries have from one to four potential agricultural fields within 100 feet. Other ephemeral streams may also exist in or near the proposed agricultural areas but have not been identified at this time.

Riparian buffer zones for the river and its tributaries vary in size and quality, but range from several hundred feet of relatively healthy forested riparian buffer to virtually no buffer at all in some highly impacted areas. While agricultural SUPs have included buffer requirements to the Cuyahoga River ranging from 15-50 feet over time, until recently, the NPS has not formally required that specific buffer areas to all park watercourses be maintained. This has resulted in some continued degradation of these riparian areas. However, the park is currently in the process of applying a new *Riparian Buffer Plan for Agricultural Lands* (NPS 2002a) which assigns 50-120 foot buffer zones to all watercourses based on drainage size and local conditions. Riparian buffers are summarized in Appendix H.

Table 3.3. Rivers and Streams Potentially Affected by Proposed Agricultural Activities

Large Drainages (>50 sq. mi.)	**Fields within 200ft.**
Cuyahoga River	32
Tinkers Creek	3
Small Drainages (0.5-20 sq. mi.)	**Fields within 100ft.**
Adam Run	1
Dickerson Run	1
Langes Run	4
Peninsula Run	3
Robinson Run	2
Salt Run	1
Stanford Run	6
Unnamed Tributary 1	2
Unnamed Tributary 2	2
Unnamed Tributary 3	1
Unnamed Tributary 4	2
Unnamed Tributary 5	1
Unnamed Tributary 6	1

3.4.2. Wetlands

Many wetland areas exist in CVNP. A recent park-wide wetland inventory indicates that more than 1,200 wetland areas encompassing approximately 1,700 acres exist in CVNP (Davey Resource Group 2001). Most CVNP wetlands are small, with only 190 greater than an acre in size and only 35 greater than 10 acres in size. Additional small wetlands may yet remain undetected.

Wetland types found in the park include marshes, wet meadows, scrub/shrub wetlands and forested wetlands. Small emergent wetlands occurring in isolated depressions fed by surface water are most common. Small wetlands are also often found at the head of small, intermittent drainage ways, adjacent to ponds or as hillside seeps where groundwater flows out of a hillside. Many wetlands are partially or completely forested or include a shrub component. The largest wetlands are located within the Cuyahoga River floodplain and include emergent, shrub, and forested areas.

Only wetlands in or near proposed agricultural areas are likely to be affected by the proposed action, with the potential for impact decreasing over distance. Wetlands within 100 feet of agricultural areas would be most likely to be affected by the proposed action but activities occurring within 300 feet may impact wetland habitat quality in certain situations (Castelle et al. 1992).

Wetland inventory maps and site-specific wetland surveys indicate that a total of approximately 230 wetlands are located within 300 feet of proposed agricultural land parcels (Davey Resource Group 2001; URS Corporation 2002). This includes nine relatively large wetlands greater than 10 acres in size. The vast majority of wetlands (>180) are small wetlands estimated to be less than one acre in size.

Approximately 53 known wetland areas are within or directly abut proposed agricultural lands. Approximately 85 additional wetlands are within 100 feet. Approximately 1/3 of the potentially affected wetlands currently has no agricultural activity or mowing occurring within 300 feet. Buffer zones for the wetlands currently associated with agriculture vary in size and quality. The park is currently in the process of applying a new Wetland Protection Plan for Agricultural Lands (NPS 2002b) which assigns buffer zones to all wetlands based on size, quality, and local conditions. Wetland buffers are summarized in Appendix H.

In addition to providing habitat for many plants and animals, special wetland characteristics such as vernal pools which serve as breeding areas for amphibians and potential roosting trees for the endangered Indiana bat (*Myotis sodalis*) exist in some of these wetland areas. A great blue heron rookery (*Ardea herodias*) at Pinery Narrows is located approximately 200 feet across the Cuyahoga River from an area that is currently mowed seasonally.

Wetland systems in CVNP have been greatly affected by many years of disturbance and land use changes within the Cuyahoga Valley. The Ohio & Erie Canal, railroad and road

beds, dredging of stream channels, utility corridors, filling and grading activities, topsoiling, beaver impoundments, landfills and gravel pits, and drainage for agriculture have all profoundly influenced the current configuration of this large wetland system. Not all disturbances have resulted in a decrease in wetland area. In fact, many of the disturbances may have increased the size of wetlands. Additionally, beavers (*Castor canadensis*) continue to be active in the park and this has also affected the size and distribution of wetlands.

3.4.3. Lakes and Ponds

In addition to wetland areas, more than 100 lakes and ponds dot the park landscape, with approximately 70 existing on federal lands. Ponds on federal land range in size from less than 1/10 of an acre to more than 10 acres (e.g., Kendall Lake). All ponds except one (Oxbow) are human-made (i.e., artificial), with many originally created to serve as small farm ponds. Long-abandoned ponds usually have reverted to a more natural state and now have wetland characteristics. Such ponds are treated as natural wetlands, assigned protective buffers and managed for natural resource values. Other artificial ponds are still used as water sources for agricultural activity or managed as recreational resources (e.g. fishing areas) according to the park's Pond Management Plan (NPS 1993b). Managed ponds are often mowed around portions of their perimeter to provide for public access and dam maintenance. Park staff monitors pond water quality every five years. Pond water quality is considered good as all ponds meet State of Ohio warm water habitat standards.

Thirteen ponds are within 200 feet of proposed agricultural areas. Pond characteristics are summarized in Table 3.4. Three ponds currently managed for recreational uses are near current or proposed agricultural lands (Armington, Horseshoe, and Stanford). Tadpole, Fink, and Leyser ponds are currently directly associated with adjacent agricultural use. Most of the 13 ponds currently have known wetland areas directly associated with them (Davey Resource Group 2001; URS Corporation 2002).

Table 3.4. Ponds Associated with Proposed Agricultural Lands

Name	Tract #	Acres	Wetlands	Managed/Current Agricultural Use
Armington Pond	115-36	3.44	Yes	Yes
Bittersweet Pond	121-43	0.21	Yes	
Buena Vista Pond	109-09	0.34	Yes	
Fink Pond	112-24	1.00		Yes
Hickory Pond	109-40	0.21	Yes	
Horseshoe Pond	112-33	3.35	Yes	Yes
Leyser Pond	106-05	< 0.1		Yes
Pittenger Pond	115-33	1.70	Yes	
Prussak Pond	108-27	0.20	Yes	
Stanford Pond	109-66	0.32	Yes	Yes
Tadpole Pond	110-05	0.63		Yes
Turtle Pond	109-57	0.42	Yes	
Wolkin Pond	112-31	1.50	Yes	

More than 1,200 wetland areas encompassing approximately 1,700 acres exist within the park boundary.

3.5. SOCIAL ENVIRONMENT

3.5.1. Human Component of CVNP

The natural and cultural components of CVNP are predominant features of the park, but the human component cannot be overlooked. The number of people who live in, work in, and visit the park is significant.

The park spans portions of two Ohio counties (Cuyahoga and Summit). One community in Summit County is surrounded entirely by the park boundary (Peninsula) and there are 14 other communities partially located in or around the park boundary.

CVNP is one of the top 15 most visited national parks in the country, with approximately 3.5 million visitors each year, with the highest visitation occurring during the spring, summer and fall months. During the peak summer season, the number of employees reaches between 150 and 200. The park has an active cadre of volunteers totaling approximately 1,400. The human component of CVNP dominates some areas of the park (e.g., trail systems and visitor centers), but also reaches some remote areas.

The proposed action could impact this human component of CVNP through effects on health and safety, nuisance wildlife, visitor use and experience, and local communities.

3.5.2. Human Health and Safety

There are three main issues associated with the proposed action that could affect human health and safety: the amount of electric fencing, the amount of guardian animals that could be used in the park, and potential increases in deer-vehicle accidents.

Electric fences deliver a shock to animals (or people) who come in contact with the fence. This shock deters wildlife from entering a field. Signs placed at regular intervals along the length of the fence alert people of the potential for shock. Guardian animals, such as dogs and llamas, are used similarly to deter wildlife from approaching farmers' crops.

Currently, the amount of electric fencing on federal land is limited. There are four SUP fields (approximately 40 acres) with perimeter electric fencing. Three of these fields are out of sight of visitors and have very significant buffers of trees, slopes, or the river, between the electric fence and visitor use areas. The other field with electric fencing is visible, but has a required buffer of 100 feet between the fence and the Towpath Trail. No reports of people coming into contact with any of these fences have been made. A few other SUP and HPLP farmers use fences, particularly for horse pastures. There is minimal historic fencing on federal land in the park. Three new long-term leases have recently been signed and it is anticipated that these farmers will soon install additional fencing.

There are a few instances where guardian animals such as dogs and llamas are currently used to protect crops and livestock in the park (e.g., on retention property and private farms) though no SUP allows for their use. There have been no reported conflicts with visitors.

Reported deer-vehicle accidents in Cuyahoga and Summit Counties in 2000 were 461 and 623 respectively (ODNR 2001b). Summit County has been among the leaders in deer-vehicle accidents in Ohio for several years. Personal injury generally occurs in about 7 percent of all accidents, with fatalities being rare (Cuyahoga Valley Communities Council 1996). Most deer-vehicle accidents usually occur from October-December during the deer breeding season when deer are most active. Concentrations of deer-vehicle accidents occur in some high volume areas, but generally accidents around the park area are widely distributed (Cuyahoga Valley Communities Council 1996). Accidents involving other smaller wildlife are generally not considered a safety issue. Deer populations are described in Section 3.3.4 and impacts on deer are addressed in Section 4.3.

3.5.3. Nuisance Wildlife

Nuisance wildlife issues were summarized in Section 3.3.8. Nuisance wildlife can cause damage to both agricultural and residential resources, by feeding on crops, landscaping, and gardens. Some animals (e.g. coyotes, raccoons) raise fears over personal safety just by their increased presence. Residents and farmers may be required to increase harassment, deterrent, capture and killing of wildlife in response to these pressures, resulting in costs to those affected.

3.5.4. Visitor Use and Experience

Visitors come to CVNP to use and experience the park in many different ways, but these translate into what they come to "see" and "do." These park resources can be divided into two main categories: scenic values and recreational activities.

3.5.4.1.Scenic Values

The abundant scenic resources of the park, within an hour's drive of three cities (Cleveland, Akron and Canton) containing about 4 million people, make it an attractive destination, as well as a respite from the bustle of city life. Visitors perceive the park to be more remote than it is, probably due to the strong contrast with adjacent developed areas (Schleicher et al. 1994). Evidence of the long history of use by humans is contrasted by the large swaths of more natural areas. Scenic views and vistas from either side of the valley reveal patterns of nature and of humans. Visitors also enjoy parts of the park because of what they do *not* see there - industry, signs, light pollution.

Sight-seeing and pleasure driving are among the most popular activities in CVNP (Anderson et al. 1992) The scenic Cuyahoga River flows through the center of the entire

22-mile length of the park and is fed by many smaller, attractive tributaries. Riverview Road, which is designated on the state and national level as a Scenic Byway, also runs through the entire length of the park. An 8-mile segment of the Cuyahoga River ver has been listed on the Nationwide Rivers Inventory, a register of river segments that potentially qualify as national wild, scenic or recreational river areas under the National Wild and Scenic Rivers Act. Other prominent scenic natural resources include cascading waterfalls such as Brandywine Falls and Blue Hen Falls and the sandstone cliffs and hemlock groves of Kendall Ledges.

Over 250 historic structures, including the historic Ohio & Erie Canal and the adjacent Towpath Trail, Everett Village, the Everett Covered Bridge, and Boston Store are just some of the cultural resources that contribute to the scenic values of the park.

In addition to the federal park lands, scenic metropolitan park areas within the park boundary are managed by Cleveland Metroparks (Brecksville and Bedford Reservations) and Metro Parks, Serving Summit County (e.g., O'Neil Woods, Hampton Hills, Furnace Run).

3.5.4.2.Recreational Activities

Annual Visitor Use Surveys conducted by the NPS provide information about the multitude of reasons why visitors come to CVNP, which include various types of recreational activities, educational programs, and relaxing and enjoying nature.

Walking, running, biking, and hiking on the Ohio & Erie Canal Towpath Trail is very popular. Indeed, the Towpath Trail is probably the most significant recreational resource in the park. When the towpath reconstruction was complete in 1993, park visitation increased by 1 million visitors that year alone (Schleicher et al. 1994). More than 100 miles of other trails traverse the CVNP landscape. Visitors hike, run, and cross-country ski along many of these trails, but many enjoy exploring the park by going ‘off-trial’. The desire to get 'off the beaten path', as well as the need to do scientific research, often draws people away from developed trails.

Many visitors come to observe the abundant wildlife. Wildlife species that are most often viewed by visitors are white-tailed deer, beaver, and great blue heron. A large beaver marsh with an active lodge is established as a public wildlife viewing area. Two large heron rookeries are present, one of which (at Bath Road) is established as a viewing area with interpretive signage. Wildlife-viewing visitors also include a large number of amateur birdwatchers.

Other common activities include dog-walking, picnicking, fishing, canoeing, driving, relaxing, and attending park-sponsored programs. Many visitors enjoy learning about nature, history, or culture through ranger-led programs and hikes and visits to the park's four Visitor Centers.

Visitors also come to CVNP to participate in programs offered by the park's many partners, such as Hale Farm & Village, Cuyahoga Valley Scenic Railroad, and Cuyahoga Valley Environmental Education Center, to name a few.

Pumpkins for sale at a farm stand within the park.

Local farmers report that several thousand visitors annually patronize specialty farms in the park, such as Heritage Farms and Crooked River Herb Farm. Indeed, farm operations such as Szalay's Sweet Corn Farm draw obvious crowds during harvest time.

In addition, there are many other businesses offering recreational opportunities within park boundaries. These include, but are not limited to, four golf courses, ski areas, a bed and breakfast, and an outdoor music pavilion (Blossom Music Center).

3.5.5. Local Communities

3.5.5.1.Municipalities

Fifteen municipalities are located partially or completely within the park boundary (Table 3.5). The communities that lie in and around CVNP include cities as large as Akron, (217,074 people) and as small as the Village of Peninsula (602 people) (US Census 2000). Some only have a small amount of area within the park (Akron, <1 percent), but others are largely within the park (Boston Township, 87 percent) or effectively surrounded by the park (Peninsula). The total population of the 15 communities is 337,912 (US Census 2000).

The properties potentially affected by the proposed action are distributed widely across these municipalities (Table 3.5). As it has been occurring throughout this document, a distinction is made between lands versus (properties with) structures. Eleven communities have agricultural lands and properties with structures that are proposed for management. Eight of the communities have less than 100 acres of agricultural land proposed for management by CVNP, while the other three - Boston Township (490 acres; 36 percent), Cuyahoga Falls (302 acres; 22 percent) and Richfield Township (170 acres; 13 percent) - have more.

Agricultural properties with structures are largely concentrated in Boston Township (29; 50 percent) with only two communities, Brecksville (6; 10 percent) and Cuyahoga Falls (5; 9 percent) having five or more of these properties. The other eight communities have less than five properties with structures proposed for management.

For the 54 properties considered as having potential for becoming part of an active farmstead, Boston Township has 10 of the high potential (43 percent) and 18 of the low potential (56 percent) farmsteads. One community has four high potential farmstead properties (Cuyahoga Falls; 13 percent) and one has three low potential farmstead properties (Brecksville; 9 percent).

While the concentration of lands and properties in Boston Township is readily apparent, a few important clarifications are needed. It should be noted that in Boston Township, one of the 10 high potential properties is a barn-only property (Kurowski Barn) and would not become a farm residence. Additionally, half (9) of the low potential properties are located in close proximity to one another in historical Everett Village, where is it highly unlikely that more than one property out of the nine would ever be selected as a farmstead. The NPS is uncertain which one, if any, would be selected at this time.

Similarly, one high potential property in both Bath and Sagamore Hills, and one low potential property in Brecksville are also barn-only properties and would not be used for residential purposes.

Table 3.5. Summary of Municipalities within CVNP

Municipalities	Population	% Area in park	Local Income Tax	Proposed Lands (Acres)	Proposed Properties	Potential as Farmsteads H	L	N
Akron City	217,074	<1	2%	0	0	--	--	--
Bath Township	9,635	8	--	44	2	2**	--	--
Bedford City	14,214	12	2.25%	0	0	--	--	--
Boston Heights Village	1,186	33	1.5%	28	2	--	2	--
Boston Township	1,062	87	--	490	29	10**	18	1
Brecksville City	13,382	34	2%	30	6	2	3**	1
Cuyahoga Falls City	49,374	25	2%	302	5	4	1	--
Independence City	7,109	21	2%	7	2	--	1	1
Northfield Center Twp.	4,931	6	--	22	1	--	1	--
Peninsula Village	602	74*	1%	95	3	2	1	--
Richfield Township	2,138	24	--	170	2	--	2	--
Richfield Village	3,286	3	2%	0	0	--	--	--
Sagamore Hills Twp.	9,340	33	--	65	3	1**	2	--
Valley View Village	2,179	35	2%	92	3	2	1	--
Walton Hills Village	2,400	39	1%	0	0	--	--	--
Totals	337,912			1345	58	23	32	3

Sources: Populations from 2000 Census figures (U.S. Census 2000). H = High; L = Low, N = No
* Peninsula is not completely within the park, but is effectively surrounded by the park boundary.
** One of these is a "barn-only" property and would not become a residence.

3.5.5.2.School Districts

Nine school districts cover the area of the park. Only those that have properties that are available for management are likely to be affected by the proposed action. This includes six school districts: Brecksville/Broadview Heights, Independence, Nordonia Hills, Revere, Woodridge, and Valley View (Table 3.6). Student enrollments range between approximately 800 – 4,000 students (mean = 2,289). A varying proportion of local, state, and federal funds supports school districts. Many school districts rely largely (>70 percent) upon local revenues comprised mostly of property taxes to support the schools.

The 54 properties that could be used as residences under the alternatives, which exclude the four properties equipped only with barns, are distributed across the six school districts, with the largest amount occurring in the Woodridge School District (40; 74 percent). No other district has more than five.

Woodridge School District contains 16 of the high potential farmstead properties (80 percent) and 23 of the low potential properties (72 percent). However, as mentioned above, nine of the low potential properties are located in close proximity to one another in historical Everett Village, where is it highly unlikely that more than one property would ever be selected from this group as a farmstead. The NPS is uncertain which one, if any, would be selected at this time. Also, only six properties in the Woodridge School District are currently vacant and unused, and 21 already have residential uses.

Woodridge School District has been growing at a rate of 150 students per year for the last 5-6 years, increasing from about 1000 to nearly 2000 students today. The district is having significant difficulties making space for new children that are coming into the system from new residential developments around CVNP (McGuire 2002).

Currently, 27 of the 54 residential properties (50 percent) have residential uses under park leases or other agreements (11) or remain private residences under retentions (10) or life estates (6). Structures used by the NPS are also occasionally used as residences (e.g., Gillette).

Based on a cursory review of rural landscape properties, an estimated 1 in 3 residential park properties currently include families with children, totaling approximately 12 children (an average of ~2 children per family). School-age children attend local schools, although some are known to attend private schools. The number of children residing in life estate or retention properties is unknown. Life estates usually have older residents that are not expected to often have school age children, but the renting of properties under retention is common and may include families. Fewer than 20 percent of proposals received for the Countryside Initiative Request for Proposals in 2001 included children, although that information was not specifically requested.

Table 3.6. School Districts in CVNP That May Be Affected by the Proposed Action

School District	Avg. Enrollment**	Avg. Spending/Student (%Locally Funded)**	Proposed Properties*	Potential as Farmsteads		
				H	L	N
Brecksville/Broad-view Heights SD	3,925	$7,935 (80.4%)	5	2	2	1
Cuyahoga Heights SD	794	$14,572 (90.9%)	3	2	1	
Independence SD	988	$10,428 (82.4%)	2		1	1
Nordonia Hills SD	3,608	$7,505 (71.4%)	2		2	
Revere SD	2,788	$7,559 (79.1%)	2		2	
Woodridge SD	1,632	$7,172 (77.9%)	40	16	23	1
Totals			54	20	31	3

* Only residential properties are counted; four barns are excluded.
** Average enrollment and costs are derived from Ohio Department of Education district profiles 1999-2000 (Ohio Department of Education 2001).
H = High; L = Low, N = No

3.5.5.3.Local Business and Economies

Business and residential development has expanded along the main north-south corridor just outside of the park since the park's creation. Concentrations of residential areas now abut the park in many areas. Small retail businesses that serve these communities (e.g., gas stations, restaurants, shops, grocery stores, etc.) are located along the many roads entering and leaving the park.

Small areas within the park remain developed for residential or retail business uses, including concentrations in Peninsula, Boston, and residences along Tinker's Creek Road. Other businesses (golf courses, ski areas, etc.) that thrive inside the park and provide recreational services are mentioned in the previous section.

As described in detail in Section 1.2.3, many farmers are still active in the park. These farmers provide a variety of vegetable, herb, poultry, Christmas trees, and pumpkins to the public. These operations include Crooked River Herb Farm, Heritage Farms, Carriage Trade Farms, Luther Farms, Swan Farm, and Szalay's Sweet Corn Farms, among others. Farms recently established under the Countryside Initiative pilot project will soon offer products generated from integrated crop/livestock operations and a vineyard. Farmers largely sell their products through roadside stands or shops and through local markets.

Many communities collect local income (payroll) tax, although not all communities (e.g. Boston Township, etc.) impose this tax (Table 3.5). Properties owned by the federal government are not subject to the payment of property tax.

However, the National Park Service has established mechanisms by which some form of compensation can be provided to the communities to help defray the costs of services to federal properties from which little or no tax revenue is generated.

Some fiscal mechanisms to address the absence of property tax have been put in place, including two types of Payments in Lieu of Taxes (PILOT). The first type is an annual payment made to local governments and school districts for 5 years after a tract of land is purchased by the federal government. There are some tracts of land that have been purchased by the federal government within the past 5 years, so some communities are still receiving PILOT. The second type of PILOT is an annual payment made to counties (Summit and Cuyahoga) on a 'per acre' basis. These payments are made forever, based on the availability of appropriated funds. Another mechanism is a 'retained interest tax' (Ohio Revised Code §5705.61) that is distributed to local governments and school districts just as property tax revenues. These taxes help to somewhat offset the net fiscal impact of CVNP. However, the retained interest tax does not apply if the lessee's purpose for using a government building is primarily to fulfill a government mission.

In terms of law enforcement, NPS rangers work cooperatively with the local police departments and in some cases have written agreements that outline the roles and responsibilities of each entity. The park has overlapping law enforcement jurisdictions with State and local law enforcement agencies. Residents, park visitors, and the park's resources benefit from cooperative law enforcement efforts by all agencies.

The NPS provides annual compensatory payments to the jurisdictions responsible for fire protection and emergency services for the suppression of all structural, grass, brush, and forest fires and non-fire and/or non-medical emergencies on NPS administered land. The NPS maintains a list of structures to be protected in each jurisdiction. Each jurisdiction is then reimbursed a certain amount ($15-$29) depending on whether the structure is "unoccupied", "occupied", or "NPS-utilized". Also, each jurisdiction receives $100 for grass, brush, and forest fires and non-fire and/or non-medical emergencies, with additional amounts for each occurrence (NPS 2001d). Many of the structures that will be used in the new rural landscape management program are already protected by the local jurisdictions, but some that are now unoccupied may become occupied under the proposed action.

Road maintenance is the responsibility of the local jurisdiction, as the National Park Service does not own the roads. However, because of the increased use of roads due to park visitation, congressional authority was obtained in 1992 which allows CVNP to provide financial assistance, in the form of matching grants, to communities that apply for these grants. CVNP has a maximum amount of $250,000 to distribute annually to communities whose road project grant applications indicate a mutual benefit to park visitors and the community.

The NPS has no authority to reimburse school districts for any costs associated with schooling the children of families occupying NPS-owned properties.